Wildlife Cameras on College Campus Provide Community Engagement and Research Opportunities

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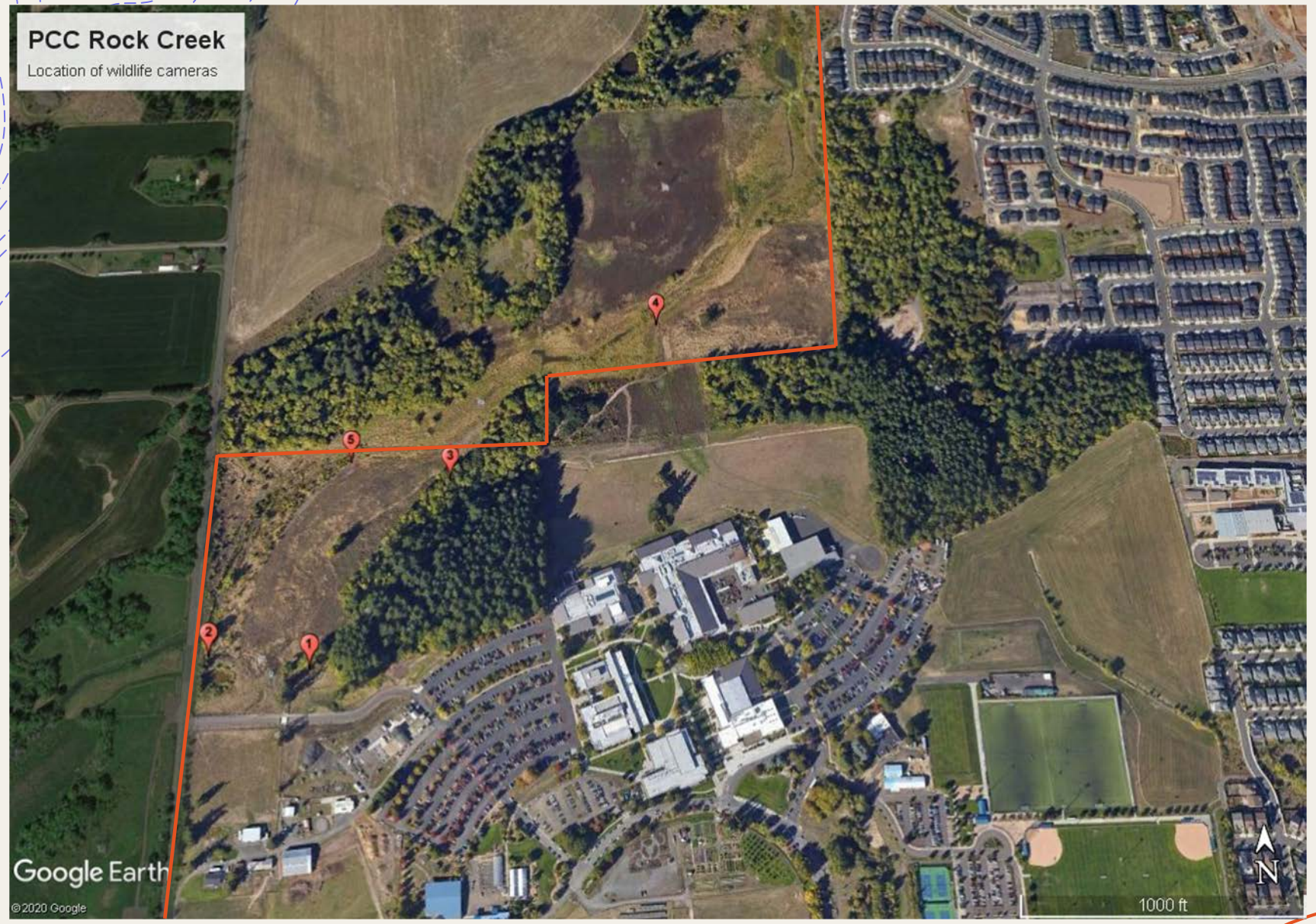
Urban Ecosystem Research Consortium Symposium 2021

Setting: PCC Rock Creek Environmental Studies Center



+ 110-acres of wetland, forest, and oak woodland at edge of UGB
+ Managed for wildlife habitat and hands-on learning experiences
+ CWS wetland enhancement project (2017)

Authentic research experiences during COVID

+ Botanical surveys
+ Permanent forest plots
+ Wetland characteristics
+ Planting/monitoring native plants
+ Amphibian egg mass monitoring
+ eBird surveys
+ Wildlife cameras

Research questions

1. How does species richness and composition change over time?

2. At what times of day do we capture the most images of animals?

3. During which season are elk most likely to migrate through the RCESC?

4. How does the sampling effort (camera days) effect number of captures?

Methods: Wildlife camera data

- 5 Reconyx PC900 HyperFire wildlife cameras set up at PCC Rock Creek (Fall 2015 – 2020)
- Triggered by movement and temperature differences (infrared sensor)
- Images include date, time, temperature, moon phase
- Photographs shared in Google drive and data about images entered in Excel
- Each '**capture**' was recorded; based on count of individuals taken at least 30 minutes apart
- Categorized as taken during day (6 am – 5:59 pm) or night (6pm - 5:59 am), and by season and year
- Categorized as taken during light (color photo) or dark (black and white) conditions
- Calculated the number of **camera days** for each camera, season, and year to estimate sampling effort

Methods: Camera locations and views

Camera 1

Camera 2

Camera 3

Camera 4

Camera 5

Results – Questions 1 & 4. Species richness and sampling effort

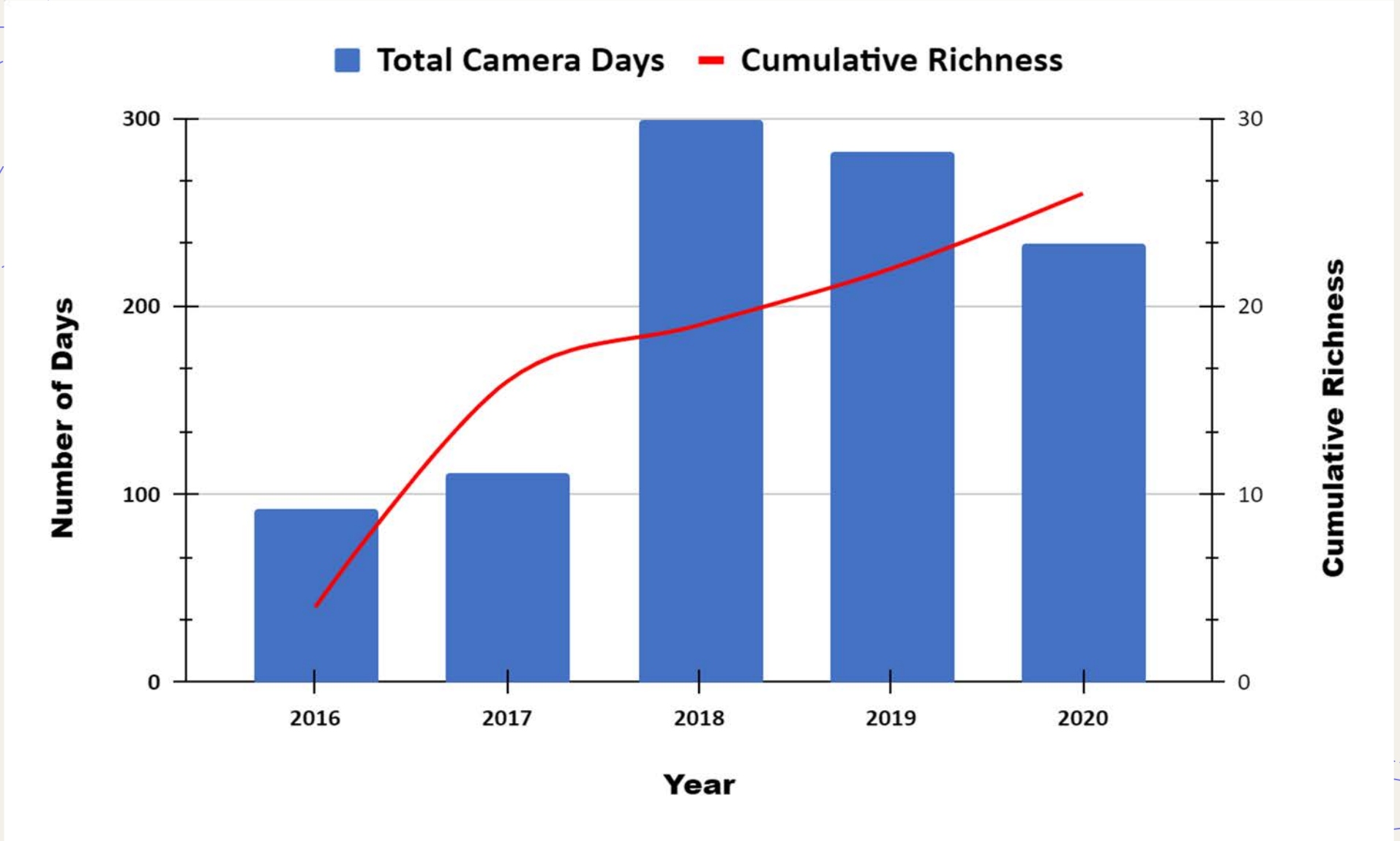


Figure 1. Species accumulation and total camera days for 2016 - 2020.

Results – Question 1. Species composition

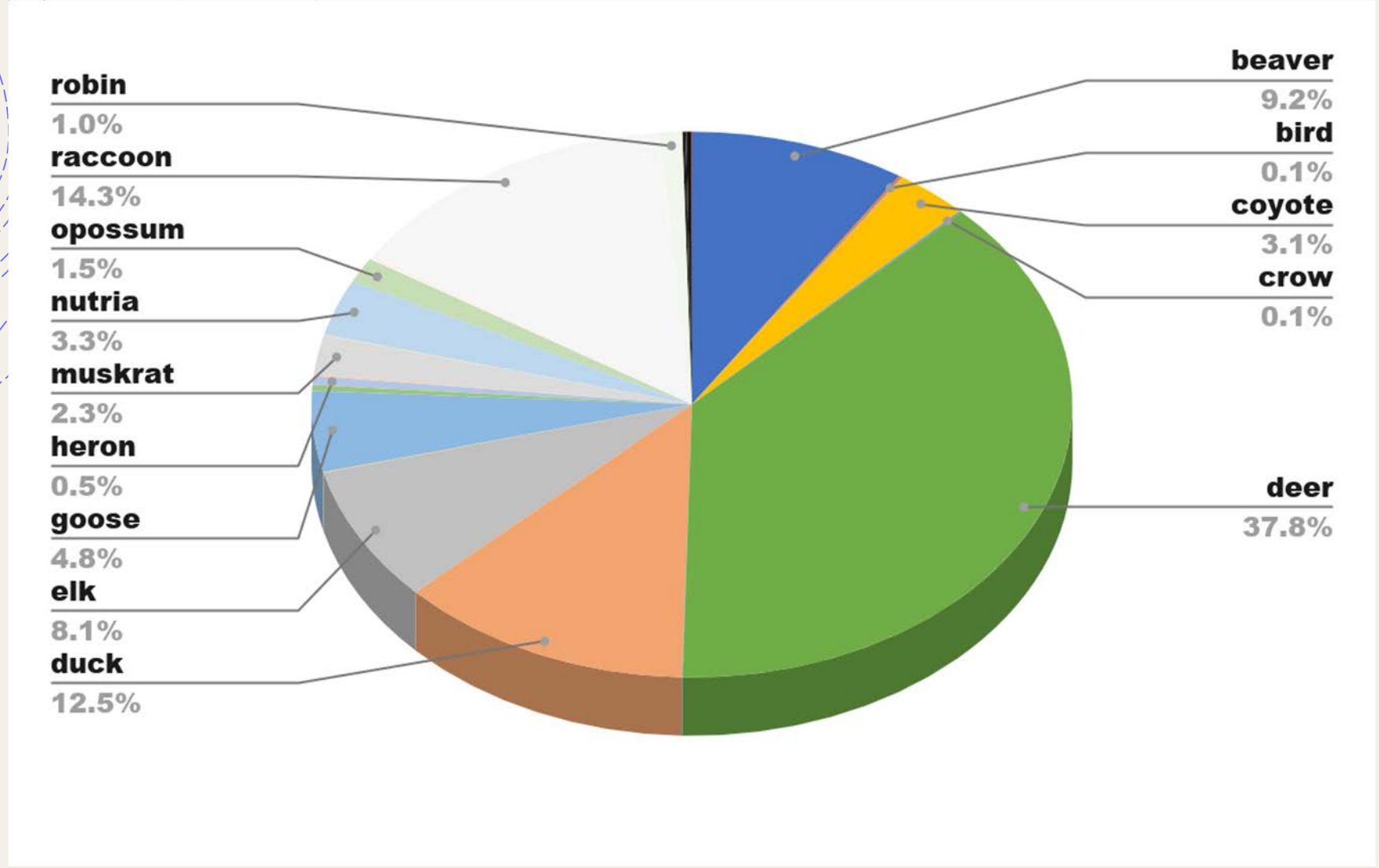


Figure 2. Species composition and relative abundance 2016 – 2020

Results – Question 2. Time of activity

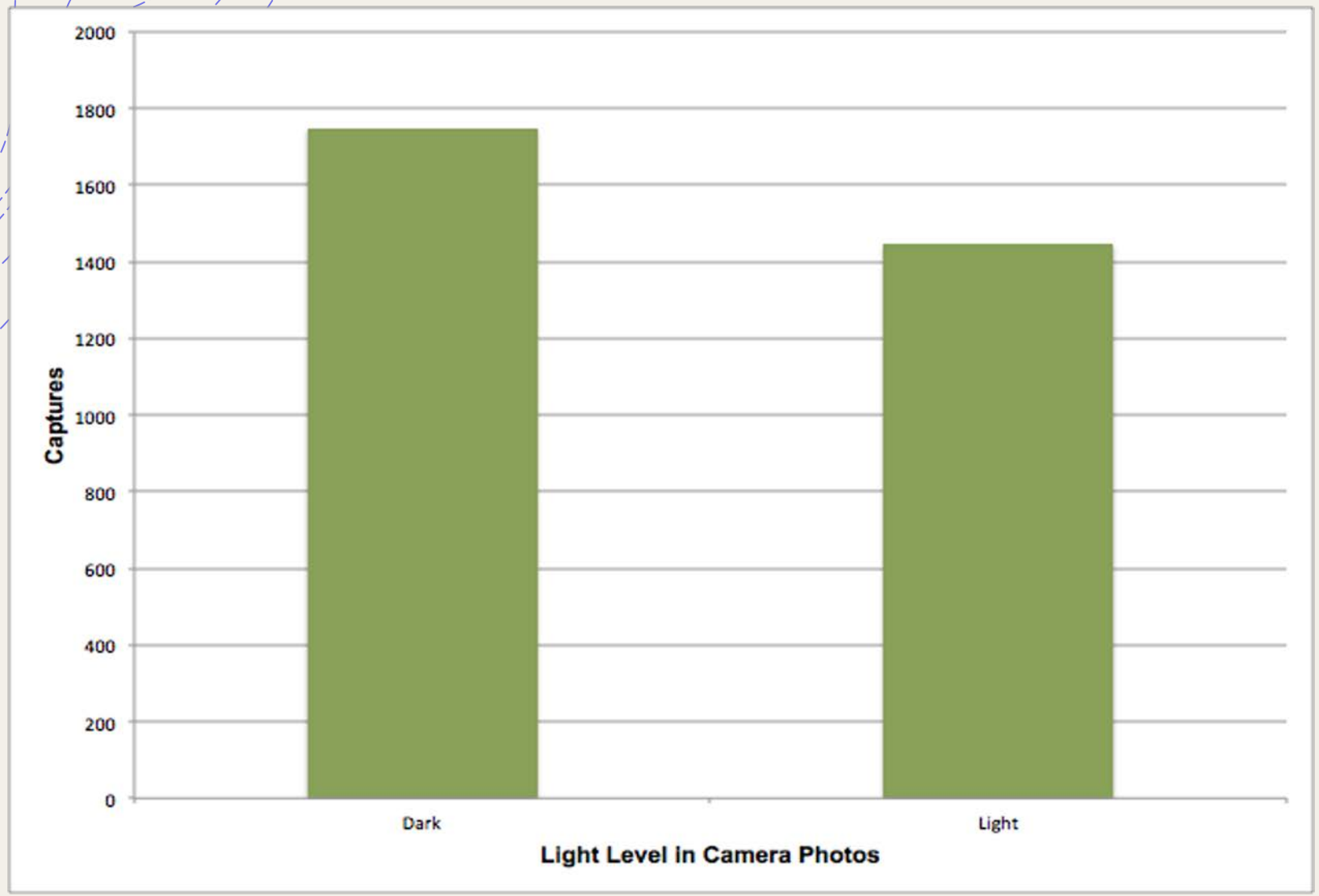


Figure 3. Species counted in light vs. dark photos from 2016-2020

Results – Question 2. Time of activity

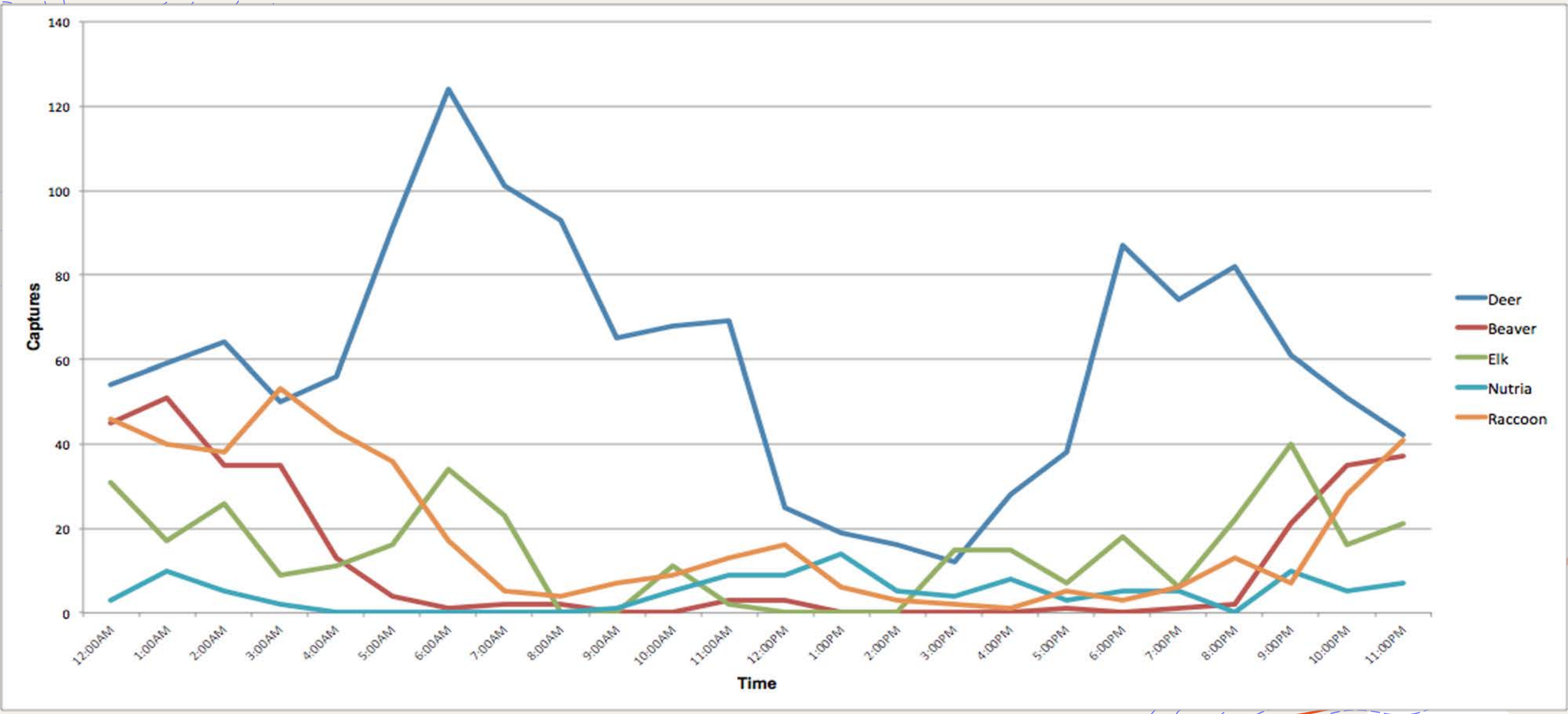


Figure 4. Number of captures for five species taken at different times of day

Results – Question 3. Seasonality of elk

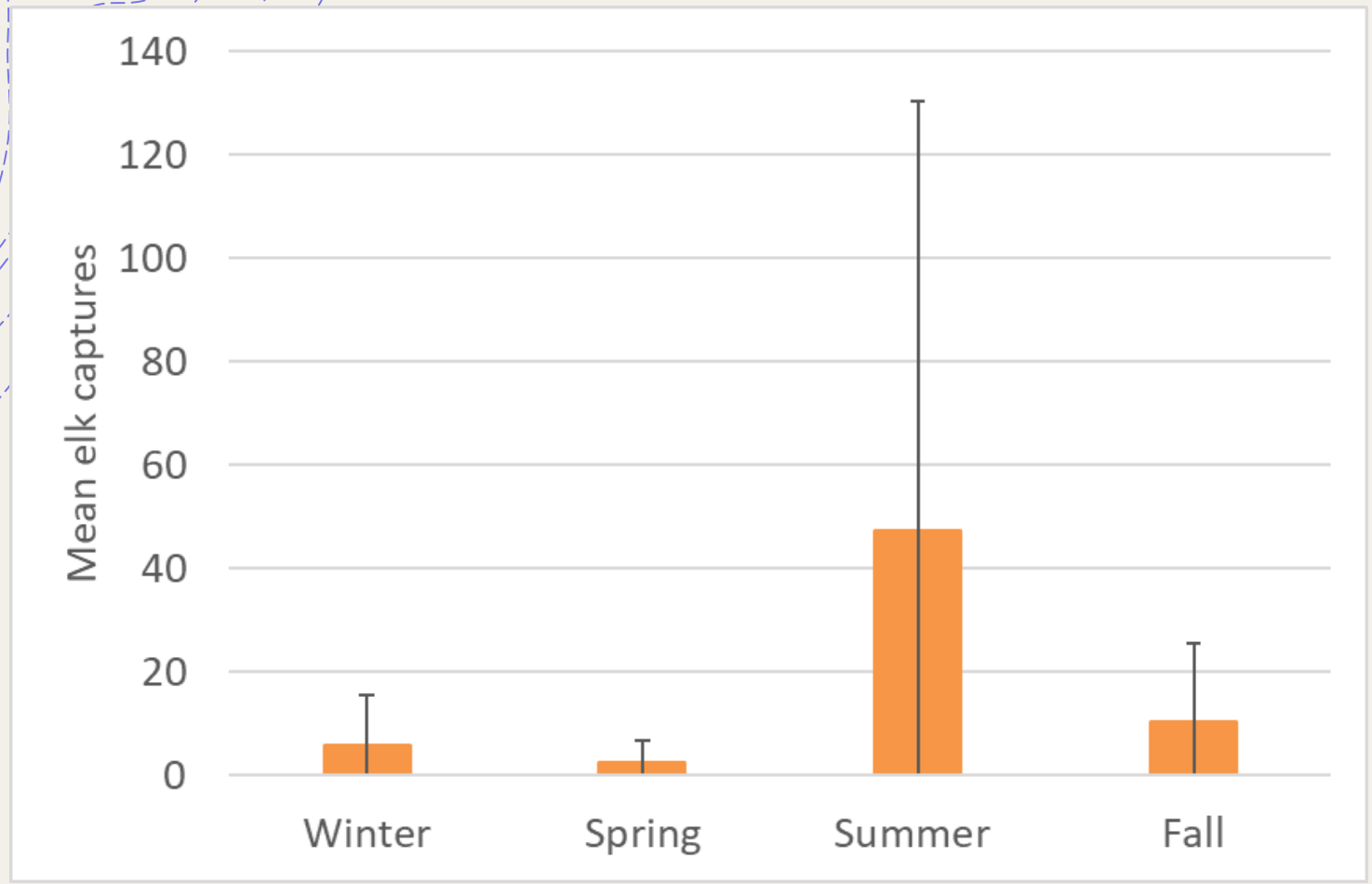


Figure 5. Mean (+/- SD) number of captures of elk for each season (2016-2020).

Results – Questions 3 & 4. Elk seasonality and sampling effort

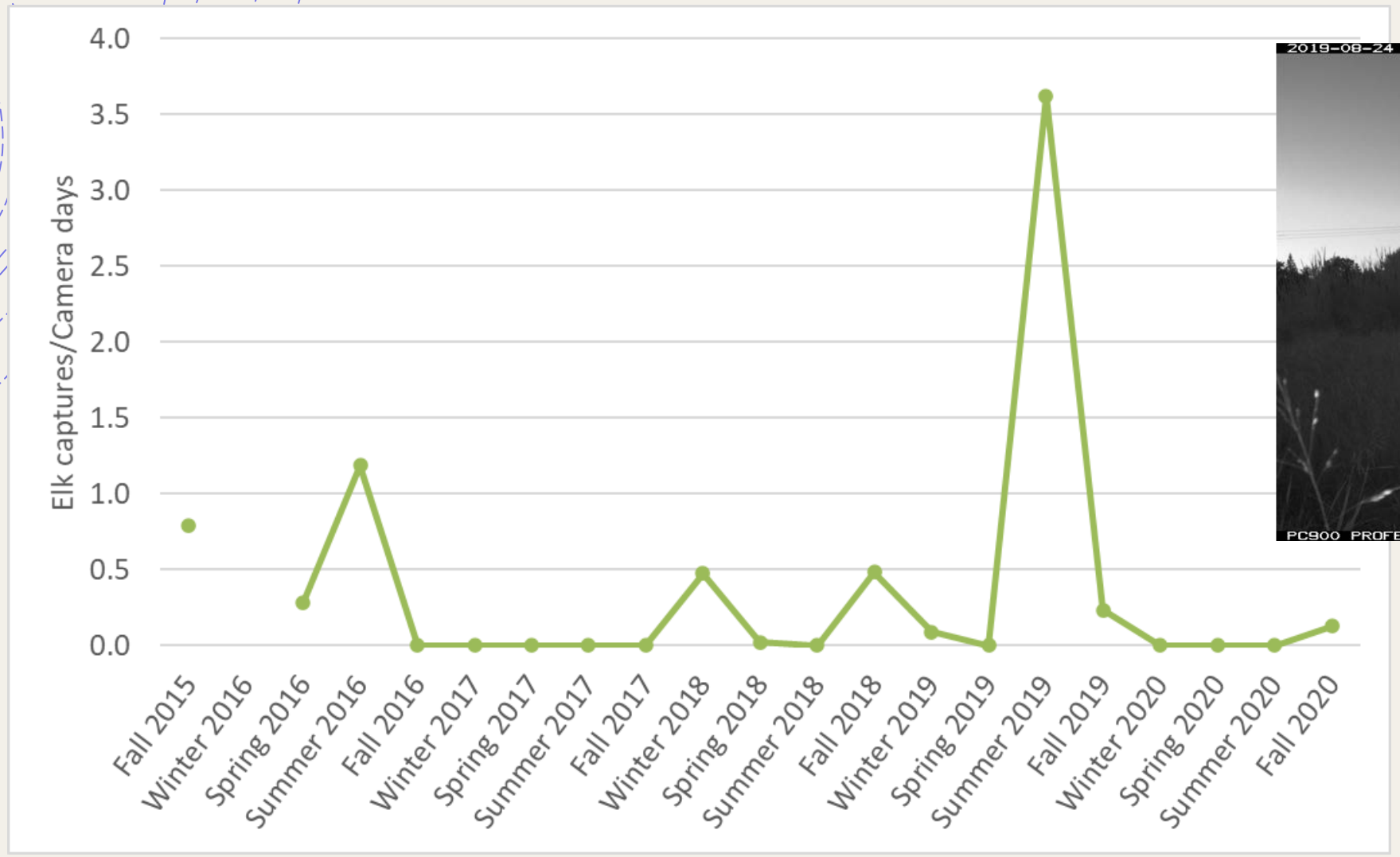


Figure 6. Elk captures per operational camera day (2015 – 2020)

Conclusions

Conclusions

1. Documented species diversity increased over time.
2. Most animal species are more active during dark hours.
3. Elk are most frequently observed in the RCESC during the summer, but this is highly variable.
4. Sampling effort, as described by number of camera days, is important to consider.

Further questions with management implications

- How has animal diversity changed over time with wetland enhancement efforts?
- How does disturbance (e.g., new housing, construction) affect animal activity?
- How do wildlife use habitat and move through the area?

References

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